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Andrew Epstein

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Abstract

As the Arctic Sea ice continues its precipitous retreat, the receding waters lure advancing commercial activity into previously inaccessible northern climates. The Arctic's increasingly ice-free waters are spurring a geopolitical race to claim (or to preserve) the Arctic's natural living resources because there is a potentially limited number of fish.

At this moment, the uncertain legal status of the Beaufort Sea presents the United States, Canada, and other nations with a unique opportunity for proactive management of the Arctic Ocean's fish resources. The territorial dispute between the US and Canada concerns their shared maritime boundary in the Beaufort Sea. A 6,250 nautical mile overlap between the two nations' exclusive economic zones consists of exploitable fishing resources.

By utilizing a comparative analysis of the joint management approach implemented by Russia and Norway in the Svalbard Zone, this Comment seeks to bring about a sustainable fisheries management plan in the Beaufort Sea. It first analyzes the tragedy of the commons as it applies to open-sea fisheries. It then reflects on how the United Nations Convention on the Law of the Sea provides the relevant legal mechanism for resolving an international dispute concerning ocean resources. This Comment acknowledges that several commentators have suggested that this device is not suited to manage the Arctic's ecological conditions nor does it successfully remedy either nation's territorial claims. Other commentators have denigrated a cooperative model by claiming that successful resource use and conservation requires single-state management within well-defined jurisdictions.

Rather than delimiting each nation's territory in an inherently unsatisfactory method, this Comment posits that application of the Convention's overarching principle of conservation could yield a satisfactory accord between the US and Canada concerning fish resources. But in order to achieve such a result, the US and Canada must undertake four tasks: (1) sharing

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research, (2) developing a common understanding of the issues, (3) pursuing a course of indirect coercion, and (4) bringing about voluntary participation.

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> "Why should we allow the sterile goals of the nation-state to define the future of the North? National sovereignty is a limited and limiting concept. Beyond sovereignty lies stewardship. Sovereignty is a national issue, stewardship an international issue. Surely the Arctic is a place where we ought to attempt to transcend the particularities of our [commercial and political system]."[1]

I. INTRODUCTION

In the summer of 2007, the Arctic Ocean's ice cover melted by more than one million square miles.[2] To put this in perspective, one million square miles is equivalent to four times the size of Texas. This type of occurrence will continue without abatement for the foreseeable future unless swift and dramatic action is taken to curb emissions of greenhouse gases.[3] In a doomsday scenario, the Intergovernmental Panel on Climate Change—comprised of 2,500 of the world's most prominent climate scientists, economists, and risk analysts—predicts that the region could be free of summer ice by 2040.[4]

As Arctic Sea ice continues its precipitous retreat, the receding waters lure advancing commercial activity into previously inaccessible northern climates.[5] The Arctic's increasingly ice-free waters are prompting a geopolitical race to claim (or to preserve) the Arctic's natural living resources because there is a potentially limited number of fish.[6] For much of human history, ocean resources, a paradigm for common-property resources,[7] have been harvested for short-term gain with little concern for long-term consequences. Resource

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1 Erik Franckx, *Maritime Claims in the Arctic: Canadian and Russian Perspectives* 307 (Martinus Nijhoff 1993).

2 Hans H. Hertell, Comment, *Arctic Melt: The Tipping Point for an Arctic Treaty*, 21 Georgetown Intl Envir L Rev 565, 567 (2009).

3 Id at 568.

4 *Before the Ice Melts: Experts Discuss Proactive Protection of the Arctic Ocean in Anticipation of Climate Change*, 9 MPA News 1 (Aug 2007).

5 Hertell, Comment, 21 Georgetown Intl Envir L Rev at 566 (cited in note 2). Rights to oil exploration and mineral resource extraction are beyond this Comment's limited proposed cooperative management strategy for fish resources in the Beaufort Sea. But equitable criteria indicate that a similar regime could be implemented successfully. Although the Svalbard Zone has been opened for oil exploration, no drilling has yet commenced, thus it does not provide an appropriate measure of comparison. See Robin Churchill and Geir Ulfstein, *Marine Management in Disputed Areas: The Case of the Barents Sea* 24 (Routledge 1992).

6 See Shi-Ling Hsu, *What is a Tragedy of the Commons? Overfishing and the Campaign Spending Problem*, 69 Albany L Rev 75, 94 (2005) ("Rivalrous consumption is what gives urgency to the race to exploit . . . .").

7 See Part II.

conservation, especially of ocean resources, is typically a reactive exercise to identified threats.[8]

At this moment, the uncertain legal status of the Beaufort Sea presents the United States, Canada, and other nations with a unique opportunity for proactive management of the Arctic Ocean's fish resources. In the final days of his administration, President George W. Bush issued a directive concerning the nation's policy in the Arctic.[9] At its core, this directive obligates the US to protect and conserve the Arctic environment and its biological resources through sustainable development based upon scientific research.[10]

This Comment concerns fishery resource management in the disputed jurisdiction of the Beaufort Sea in the Arctic Ocean. The Beaufort Sea covers an area of about 295,000 square miles. Located off the northern shore of the Alaskan Arctic coast, it extends generally from the Point Barrow area eastward to the delta of the Mackenzie River.[11] Disappearing seasonal ice cover influences the Beaufort Sea marine environment because ice directly affects the distribution of marine mammals, birds, and, of course, fish.[12] Sea ice-melt affects all aspects of fisheries, including the rates of recruitment or growth, mortality, and the spatial distribution of commercial fish stocks.[13] In addition, as the ice melts, seafaring vessel movement becomes possible, which increases fishermen's access to the fish stocks. Currently, the ice retreat lasts only for a short one- or two-month period each summer.[14] But as the effects of climate change become more pronounced, this previously inaccessible sea could become the next great fishing destination.

The dispute between the US and Canada concerns the location of their shared maritime boundary in the Beaufort Sea. The issue first arose when the two nations negotiated a continental shelf boundary and sought to define the

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8 *Before the Ice Melts*, 9 MPA News at 1 (cited in note 4).

9 See John R. Crook, ed, *Contemporary Practice of the United States Relating to International Law: International Oceans, Environment, Health, and Aviation Law: Comprehensive New Statement of US Arctic Policy*, 103 Am J Intl L 342, 342 (2009).

10 See id at 343.

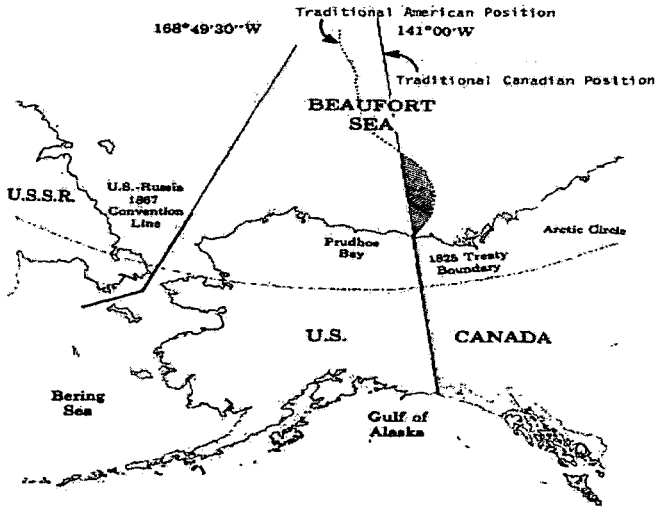
11 *Fishery Management Plan for Fish Resources of the Arctic Management Area*, North Pacific Fishery Management Council, 42 (Aug 2009), online at http://www.fakr.noaa.gov/npfmc/fmp/arctic/ArcticFMP.pdf (visited Oct 22, 2010).

12 Daud Hassan, *Climate Change and the Current Regimes of Arctic Fisheries Resources Management: An Evaluation*, 40 J Marit L & Comm 511, 514 (2009).

13 Id at 514.

14 See *Fishery Management Plan* at 42–43 (cited in note 11).

limits of their two hundred nautical mile zones.[15] In the most simplistic terms, Canada applies the 141st meridian to define the western lateral limit of its zone with the US.[16] The US employs the equidistance method between the two nations' coasts.[17] The resulting 6,250 nautical-mile overlap consists of exploitable fishing resources.[18] Previously, the area was thought to be of importance only for its hydrocarbon potential.[19] Today, this is no longer accurate. Rather, as global warming intensifies, the shrinking ice sheet becomes semi-permanent open water. This effect of climate change, combined with increasingly sophisticated fishing technology, enables deep-sea fishermen to explore and exploit the region's fish resources.



15 Alex G. Oude Elferink, *Arctic Maritime Delimitations: The Preponderance of Similarities with Other Regions*, in Alex G. Oude Elferink and Donald R. Rothwell, eds, *The Law of the Sea and Polar Maritime Delimitation and Jurisdiction* 179, 190 (Martinus Nijhoff 2001).

16 Id.

17 Id.

18 Id. See also *Before the Ice Melts*, 9 MPA News at 2 (cited in note 4) (stating that with increasingly warm waters, "fish species from the north Atlantic and north Pacific" are expected to gradually establish populations in the Arctic Ocean, thus opening new fishing opportunities).

19 Elferink, *Arctic Maritime Delimitations* at 190–92 (cited in note 15) ("The limits of oil and gas concessions of Canada and the United States in areas near their four potential continental shelf boundaries were the subject of a correspondence between [the two] government[s'] officials in the 1960s . . . [and] may have left the United States side with the impression that Canadian leases in the Beaufort Sea employed an equidistance line to limit lease areas in respect of the United States continental shelf.").

In the past, the disputed jurisdiction posed little concern for these two Arctic governments. Cooperation and friendly political relations allowed the nations to side-step the issue to address more pressing concerns.[20] But the US recently intensified the dispute[21] by unilaterally imposing a fishing moratorium pending further research. [22] In fact, on April 27, 2009, the Canadian Embassy in Washington diplomatically rejected its southern counterpart's attempted exercise of jurisdiction US east of the 141st meridian.[23] While Canada shares the concern of the US for proper management of marine resources, it has yet to unequivocally agree to the fishing moratorium.[24] This creates a dispute between the two nations as to the conservation of fish resources.

The United Nations Convention on the Law of the Sea (UNCLOS) provides the relevant legal regime for resolving international disputes concerning ocean resources.[25] UNCLOS recognizes that competition for available fish has increased globally and seeks to achieve a balance between a sovereign's interest in exploiting its resources and in conserving those resources for future generations and other nations.[26]

Some commentators have suggested that UNCLOS is not suitable to manage the Arctic's ecological conditions because only one article explicitly deals

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20 See Randy Boswell, *Canada Signals Willingness to Resolving Northern Territorial Dispute*, Vancouver Sun (Feb 17, 2010), online at http://www.vancouversun.com/news/Canada+signals+willingness+resolving+northern+territorial+dispute/2577205/story.html (visited Oct 22, 2010).

21 See Section V.C.2. Under the Fishery Management Plan for Fish Resources in the Arctic Management Area, the US exercised its purported jurisdiction in the Beaufort Sea as part of its exclusive economic zone.

22 See Randy Boswell, *Canada Considers Beaufort Sea Fishing Moratorium*, Vancouver Sun (Aug 24, 2009), online at http://www.vancouversun.com/technology/Canada+considers+Beaufort+fishing+moratorium/1925445/story.html (visited Oct 22, 2010).

23 See Randy Boswell, *Canada Files Protest Over US Fishing Ban in Arctic*, National Post (Sept 3, 2009), online at http://www.nationalpost.com/related/topics/Canada+files+protest+over+fishing+Arctic/1959555/story.html (visited Oct 22, 2010).

24 See Boswell, *Canada Considers Beaufort Sea Fishing Moratorium* (cited in note 22).

25 Stephanie Holmes, Comment, *Breaking the Ice: Emerging Legal Issues in Arctic Sovereignty*, 9 Chi J Intl L 323, 324–25 (2008).

26 Lakshman Guruswamy, *Jurisdictional Conflicts between International Tribunals: A Framework for Adjudication & Implementation*, in David D. Caron and Harry N. Scheiber, eds, *Bringing New Law to Ocean Waters* 297, 312 (Martinus Nijhoff 2004). See also Andrew Schaefer, Comment, *1995 Canada-Spain Fishing Dispute (The Turbot War)*, 8 Georgetown Intl Envir L Rev 437, 437–38 (1996) (describing an international dispute over turbot fishing).

with ice-covered seas.[27] Others note that UNCLOS lacks the legal teeth of hard law.[28] Still others claim that successful resource use and conservation requires single-state management within well-defined jurisdictions.[29] Rather than delimiting each nation's territory in an inherently unsatisfactory method, this Comment posits that application of UNCLOS's overarching principle of conservation[30] could yield a satisfactory accord between the US and Canada.

This Comment proposes a research-oriented strategy coalescing state action around environmental problems to solve the dispute involving fish exploitation in the contested area of the Beaufort Sea. While this Comment acknowledges that this strategy, similar to other soft law agreements, may fail to create any concrete legal rights or obligations, it enhances the prospect of successful fishery management. Effective environmental governance necessitates good and trustworthy information about stocks, flows, and processes within the resource system.[31]

If territorial disputes are handled simply as an opportunity for nations to extend their jurisdiction, then UNCLOS's conservation-driven purpose will be undermined.[32] UNCLOS provides a legal basis to implement conservation management principles in the Arctic marine environment.[33] A cooperative framework is the missing puzzle piece.

In light of recent collaborative research between Canadian and American scientists in mapping the Beaufort Sea's floor, Canada has signaled its willingness to resolve the territorial dispute.[34] Drawing on the demonstrated potential for successful joint management of fishing resources exhibited by Norway and Russia in the disputed Svalbard Zone, this Comment attempts to provide a guideline for successful co-management of the Beaufort Sea fishery. In order to

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27 Hertell, Comment, 21 Georgetown Intl Envir L Rev at 573 (cited in note 2) (noting that only Article 234 of the 320 Convention articles specifically relates to ice-covered waters). In its essence, Article 234 asserts that coastal states have the right to prevent, reduce, and control marine pollution from sea-faring vessels within the limits of the exclusive economic zone, where severe climatic conditions and the presence of ice-cover create obstructions to navigation and pollution could cause major harm to or irreversible disturbance of the ecological balance. UNCLOS (Dec 10, 1982), Art 234, 21 ILM 1261, 1315.

28 See Holmes, Comment, 9 Chi J Intl L at 339–40 (cited in note 25).

29 See Hertell, Comment, 21 Georgetown Intl Envir L Rev at 585 (cited in note 2).

30 Guruswamy, *Jurisdictional Conflicts* at 312 (cited in note 26) ("UNCLOS obligates signatories to cooperate with others to conserve marine resources and to contribute and exchange scientific information . . . regarding conservation of fish resources.").

31 Thomas Dietz, Elinor Ostrom, and Paul C. Stern, *The Struggle to Govern the Commons*, 302 Sci 1907, 1908 (2003).

32 *Before the Ice Melts*, 9 MPA News at 2 (cited in note 4).

33 Hassan, 40 J Marit L & Comm at 523 (cited in note 12).

34 See Boswell, *Canada Signals Willingness*, Vancouver Sun (cited in note 20).

achieve such a result, Canada and the US must undertake four tasks: (1) sharing research; (2) developing a common understanding of the issues; (3) pursuing a course of indirect coercion; and (4) bringing about voluntary participation.[35]

Section II of this Comment provides a theoretical framework for addressing fish resource management in order to avoid the tragedy of the commons. Section III explores the legal construct of UNCLOS. Section IV evaluates previous regional attempts at managing Arctic issues. Section V describes the Beaufort Sea boundary dispute between the US and Canada. Section VI investigates the fishery resource management in the Svalbard Zone between Norway and Russia. Finally, Section VII uses the insights from the previous sections to construct a framework in which cooperative research will lead to a joint management protocol that attempts to conserve fish resources within the overarching goal of UNCLOS.

Because global climate change is no longer an abstract theory, "[h]uman-induced Arctic warming and its adverse effects" require swift and prudent action.[36] Institutionally, the long history of Canadian-American cooperation, as evidenced by the Arctic Council[37] and both nations' adherence to a contingency plan in the event of an oil spill, suggests that a bi-national initiative in the Beaufort Sea could be successful.[38]

The ocean's resources, a single ecosystem, which transcend artificially created national boundaries, require a management system that will help absorb—and hopefully curtail—mankind's increasing commercial presence on the once pristine, distant, and inhospitable Arctic Ocean. Given the high levels of uncertainty regarding Arctic fisheries' ability to adapt to the stresses induced by climate change,[39] decisions concerning their exploitation must be based on sound science and research. The US has (as Canada should) proposed a moratorium on use of these resources in accordance with the precautionary principle.[40] UNCLOS obligates signatories to cooperate in the conservation of marine resources and to contribute as well as exchange scientific information

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35 See generally Geir Honneland, *Fisheries in the Svalbard Zone: Legality, Legitimacy and Compliance* in Alex G. Oude Elferink and Donald R. Rothwell, eds, *The Law of the Sea and Polar Maritime Delimitation and Jurisdiction* 317 (Martinus Nijhoff 2001).

36 Hertell, Comment, 21 Georgetown Intl Envir L Rev at 568 (cited in note 2).

37 See Section IV.

38 Betsy Baker, *Filling an Arctic Gap: Legal and Regulatory Possibilities for Canadian-US Cooperation in the Beaufort Sea*, 34 Vt L Rev 57, 70–71 (2009); Franckx, *Maritime Claims* at 246 (cited in note 1).

39 *Fishery Management Plan* at 60 (cited in note 11).

40 See Boswell, *Canada Considers Beaufort Sea Fishing Moratorium* (cited in note 22). The precautionary principle implies that a nation will act in accordance with environmental conservation and protection even in the absence of a known and well-defined threat. See David Hunter, *International Environmental Law and Policy* 510-11 (3d ed 2007).

regarding fish conservation.[41] For the sake of preserving limited natural resources and a fragile ecosystem, Canada and the US will need to accept that science and management duties transcend territorialism.

II. THE TRAGEDY OF THE COMMONS

In 1968, Garret Hardin identified the tragedy of the commons as a pervasive problem concerning environmental resources.[42] A "rational" commons user, Hardin argued, makes demands on the resource until the expected benefits of his actions equal the expected costs.[43] Because each user follows this paradigm, each user ignores costs imposed on others, thus leading to a situation in which individual decisions cumulate to a tragic overuse and the potential destruction of an open-access commons.[44] Open-sea fisheries are a prototypical common-property resource.[45] Fisheries, subject to virtually unlimited entry and growing harvest pressures, have often suffered from depleting stock populations as well as falling catch-per-unit of effort.[46]

Hardin suggested that there are two factors that drive environmental change, such as the erosion of fish stocks.[47] The first factor—an increasing demand for natural resources and environmental services—places stresses on the natural balance of the ecosystem.[48] The second factor—the manner in which humans organize themselves to extract those resources and services (often referred to as institutional arrangements)—attempts to relieve the ecosystem's stresses.[49] Hardin proposed that only two state-established institutional

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41 Guruswamy, *Jurisdictional Conflicts* at 312 (cited in note 26).

42 Garrett Hardin, *The Tragedy of the Commons*, 162 Sci 1243, 1244 (1968). See also Amy Sinden, *The Tragedy of the Commons and the Myth of a Private Property Solution*, 78 U Colo L Rev 533, 547 (2007) ("The phrase 'the commons' tends to conflate two distinct regimes: common ownership regimes and open access regimes. The former is a property rights system—group members jointly hold property rights in the resource as against the rest of the world. Thus, while they cannot exclude each other from the resource, they can exclude outsiders. An open-access regime, on the other hand, is an absence of property rights. Hardin's tragedy of the commons really applies only to the latter situation, not the former.").

43 Elinor Ostrom, et al, *Revisiting the Commons: Local Lessons, Global Challenges*, 284 Sci 278, 278 (1999).

44 Id.

45 Gary D. Libecap, *Open-Access Losses and Delay in the Assignment of Property Rights*, 50 Ariz L Rev 379, 387 (2008).

46 Id.

47 Dietz, Ostrom, and Stern, 302 Sci at 1907 (cited in note 31).

48 Id.

49 Id.

arrangements—centralized government and private ownership—could sustain the commons over an extended period of time.[50]

This approach was oversimplified. No "single broad type of ownership—government, private, or community—uniformly succeeds or fails to halt major resource deterioration."[51] Instead, cooperative management of these resources, which include fish stocks, developed by appropriate international, national, and local institutions is preferable to solving the common-property resource dilemma.[52]

III. THE LAW OF THE SEA CONVENTION 1982

A. Background of UNCLOS

UNCLOS provides the relevant legal framework to handle territorial disputes in the Arctic.[53] But UNCLOS's ambiguous language and controversial dispute resolution mechanisms provide little comfort to a nation that must maintain control over its purported jurisdiction. Further, only four of the five nations that border the Arctic Circle are parties to UNCLOS.[54] Norway (1996), Russia (1997), Canada (2003), and Denmark (2004) have all ratified the treaty.[55] The US, while having signed the treaty during the Clinton administration, has yet to ratify it. Thus, UNCLOS does not legally bind the US.[56]

UNCLOS provides coastal states with sovereign rights over the living resources in their exclusive economic zones.[57] This development provides a powerful motive for individual nations both to utilize and to protect those resources against threats of overfishing.[58] At the same time, UNCLOS attempts to strike a balance between adjacent coastal states' and land-locked nations' interests in those identical resources.

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50 Id.

51 Dietz, Ostrom, and Stern, 302 Sci at 1908 (cited in note 31).

52 Ostrom, et al, 284 Sci at 278 (cited in note 43).

53 See Section I; Holmes, Comment, 9 Chi J Intl L at 324–25 (cited in note 25).

54 Holmes, Comment, 9 Chi J Intl L at 331 (cited in note 25).

55 Id.

56 Id.

57 Discussed in Section III.B. Lawrence Juda, *Changing Perspectives on the Oceans: Implications for International Fisheries and Oceans Governance*, in David D. Caron and Harry N. Scheiber, eds, *Bringing New Law to Ocean Waters* 17, 23 (Martinus Nijhoff 2004).

58 Id at 23–24.

B. Zonal Distinctions

In 1608, international lawyer Hugo Grotius argued that the world's oceans constituted a common resource that belonged to everyone.[59] This familiar proposition has become known as the "Freedom of the Seas Doctrine," which forms the basis of modern maritime law.[60] Grotius argued that because of the ocean's fluidity, it cannot be demarcated or occupied.[61] Further, Grotius (wrongly) considered fishing an inexhaustible activity and deemed captured fish a property right.[62] Grotius's view of inexhaustible fish resources succumbed to the problem afflicting many common resource opportunities: the tragedy of the commons. The world's oceans are susceptible to overexploitation, thus refuting Grotius's assumption of limitless ocean resources.[63]

UNCLOS purports to create a series of jurisdictional zones, varying in degrees of national control, based on distance to a coastal state. UNCLOS defines a nation's "territorial sea" as the ocean space that extends twelve nautical miles from its coastal low-water mark.[64] Under UNCLOS, the territorial sea is equivalent to the continuation of a country's land and is subject to the right of innocent passage.[65] Next, UNCLOS recognizes a "contiguous zone" beyond the territorial sea.[66] A country's contiguous zone is defined as "the ocean space between twelve and twenty-four nautical miles from the coastal low-water mark."[67] Next, UNCLOS defines a country's "exclusive economic zone" (EEZ) as the area between twelve and two hundred nautical miles from a nation's coastal low-water mark.[68] A country "may exercise sovereignty over the natural resources in, on, and below the seabed in its [EEZ], and it maintains sole control over any other activities for the economic exploitation and exploration of the zone."[69] Beyond the EEZ exist the "high seas." The high seas exist as an open-access source of resource development, subject to few restrictions.[70]

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59 Holmes, Comment, 9 Chi J Intl L at 327 (cited in note 25).

60 Id.

61 Id.

62 Id.

63 Holmes, Comment, 9 Chi J Intl L at 329 (cited in note 25).

64 UNCLOS, Arts 3 & 5 (cited in note 27).

65 See Holmes, Comment, 9 Chi J Intl L at 332–34 (cited in note 25).

66 UNCLOS, Art 33 (cited in note 27).

67 Holmes, Comment, 9 Chi J Intl L at 333 (cited in note 25).

68 UNCLOS, Art 57 (cited in note 27).

69 Holmes, Comment, 9 Chi J Intl L at 333 (cited in note 25).

70 UNCLOS, Art 87 (cited in note 27).

At issue in the Beaufort Sea dispute is an area within the EEZs of both the US and Canada. Within the limits of their respective EEZs, both the US and Canada assert that they retain the rights to explore, exploit, and manage the living and non-living natural resources.[71] But these rights are limited by each state's simultaneous responsibility to manage and conserve the living marine resources.[72] Thus, the creation of a two hundred mile EEZ simultaneously increases each state's ability to exploit its fisheries and imposes increased environmental stewardship requirements.[73] The juxtaposition of this right and obligation demonstrates the inherent conflict between the ability to exploit and the duty to conserve. This globally implemented artificial delimitation further complicates matters by placing approximately 90 percent of the world's fisheries under the domestic jurisdiction of all coastal nations.[74] Without proper resource management exhibited by a coastal state, the world's fisheries are subject to demise.

C. Boundary Delimitation

Article 74 of UNCLOS provides for the delimitation of the EEZ between states with opposite or adjacent coasts.[75] In essence, it requires that delimitation be effected by agreement or subject to a third-party's decision in accordance with the provisions in Part XV of UNCLOS.[76] Subject to achieving an equitable result, UNCLOS prescribes equidistance as the fundamental principle of maritime boundary delimitation.[77] Equidistance requires that a State not "extend its territorial sea beyond an equidistant median line measured from the baselines of each State unless the States agree to the contrary."[78]

There are two general prescriptions for maritime delimitation between neighboring states:

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71 Id at Art 56.

72 Id at Art 61.

73 Id at Art 192 ("States have the obligation to protect and preserve the marine environment."). See also UNCLOS, Art 61 (cited in note 27) ("The coastal State, taking into account the best scientific evidence available to it, shall ensure through proper conservation and management measures that the maintenance of the living resources in the exclusive economic zone is not endangered by over-exploitation. As appropriate, the coastal State and competent international organizations, whether subregional, regional or global, shall cooperate to this end.").

74 Hassan, 40 J Marit L & Comm at 519 (cited in note 12).

75 UNCLOS at Art 74 (cited in note 27).

76 Id.

77 Matin Rajabov, Comment, *Melting Ice and Heated Conflicts: A Multilateral Treaty as a Preferable Settlement for the Arctic Territorial Dispute*, 15 Sw J Intl L 419, 438 (2009).

78 Keith F. Miller, *The Implications of UNCLOS for Canada's Regulatory Jurisdiction in the Offshore—the 200-Mile Limit and the Continental Shelf*, 30 Dalhousie L J 341, 372 (2007).

> (1) No maritime delimitation between States with opposite or adjacent coasts may be effected unilaterally by one of those States. Such delimitation must be sought and effected by means of an agreement, following negotiations conducted in good faith and with the genuine intention of achieving a positive result. Where, however, such agreement cannot be achieved, delimitation should be effected by recourse to a third party possessing the necessary competence.
>
> (2) In either case, delimitation is to be effected by the application of equitable criteria and by the use of practical methods capable of ensuring, with regard to the geographic configuration of the area and other relevant circumstances, an equitable result.[79]

The exact meaning of "relevant circumstances" remains debatable. What has been suggested is that parties "must take into account: (1) the configuration of the coast and the presence of special or unusual features; (2) the physical and geological structure of resources of the [water column]; and (3) [the] proportionality between the extent of the shelf area and the length of [a nation's] coast."[80] As with most multifactor tests, the weight to be given each element is indeterminate, and as such the potential for arbitrary or seemingly illegitimate decisions remains unsatisfactorily high.[81]

Part XV of UNCLOS establishes a system for dispute resolution consisting of voluntary and compulsory conciliation, arbitration, and tribunals. But UNCLOS strongly emphasizes conciliation rather than adjudication for resource-related disputes implicated by sovereignty concerns.[82] Article 279 provides that parties should first try to settle disputes informally.[83] If two parties are unable to settle the dispute, UNCLOS provides four adjudicatory methods. Parties can utilize the International Tribunal for the Law of the Sea, the International Court of Justice, or one of two arbitral tribunals.[84]

These provisional methods of dispute resolution indicate that UNCLOS could be quite effective. But Article 298 allows a nation to decline any method

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79 Jan Schneider, *The Gulf of Maine Case: The Nature of an Equitable Result*, 79 Am J Intl L 539, 569 (1985), quoting *Delimitation of the Maritime Boundary in the Gulf of Maine Area (Canada v US)*, 1984 ICJ 246 (Oct 12, 1984).

80 Karin L. Lawson, Note, *Delimiting Continental Shelf Boundaries in the Arctic: The United States-Canada Beaufort Sea Boundary*, 22 Va J Intl L 221, 236–37 (1981–82).

81 Consider *Carter v Helmsley-Spear, Inc*, 71 F3d 77, 85 (2d Cir 1995) (enunciating an easily misapplied multifactor test to determine whether an artist created an object during the course of employment).

82 Hertell, Comment, 21 Georgetown Intl Envir L Rev at 572 (cited in note 2).

83 UNCLOS, Art 279 (cited in note 27).

84 Id at Art 287.

of dispute resolution.[85] In particular, none of the dispute resolution procedures provided in Article 298 have been accepted by Canada, Denmark, or Russia, which necessarily limits the application of UNCLOS's dispute resolution methods in the Arctic Ocean.[86] Thus, under UNCLOS, the prospect of successful third-party delimitation is limited.[87]

Further, a nation that disagrees with a ruling might not recognize the legitimacy of third-party delimitation. An arbitrator may disregard colorable arguments implicating special circumstances, leaving the losing state less than satisfied with the process or outcome. The inherent ambiguity in ascertaining an "equitable result" leaves too much discretion in the control of a third party.

The potential repercussions from delimiting boundaries improperly or in a manner perceived as illegitimate necessitate an alternative approach. A preferable substitute would be a cooperative agreement in accordance with UNCLOS and its overarching goal of resource conservation through bilateral negotiation. The US and Canada should move toward such an arrangement concerning fishing rights in the disputed Beaufort Sea.

D. Application to Arctic Nations

The US remains the only Arctic nation not to have ratified UNCLOS. Initial reluctance to become a party to UNCLOS stemmed from President Ronald Reagan's belief that the provisions were against the nation's deep sea mining interests .[88] The UN has responded with several amendments to allay concerns of the US, which led President William Clinton to submit UNCLOS to the Senate. The treaty, however, remains unratified.[89] Even though the US has

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85 When signing, ratifying or acceding to this Convention or at any time thereafter, a State may, without prejudice to the obligations arising under section 1, declare in writing that it does not accept any one or more of the procedures provided for in section 2 with respect to one or more of the following categories of disputes: (a) (i) disputes concerning the interpretation or application of articles 15, 74 and 83 relating to sea boundary delimitations, or those involving historic bays or titles, provided that a State having made such a declaration shall, when such a dispute arises subsequent to the entry into force of this Convention and where no agreement within a reasonable period of time is reached in negotiations between the parties, at the request of any party to the dispute, accept submission of the matter to conciliation under Annex V, section 2; and provided further that any dispute that necessarily involves the concurrent consideration of any unsettled dispute concerning sovereignty or other rights over continental or insular land territory shall be excluded from such submission. Id at Art 298.

86 See Holmes, Comment, 9 Chi J Intl L at 337 (cited in note 25).

87 Id at 339–40.

88 Rajabov, Comment, 15 Sw J Intl L at 429 (cited in note 77).

89 Id. Modern critics of ratification assert similar arguments to those postulated during the Reagan administration, including that US interests would be hampered by increased peaceful use of the oceans, restricted US sovereignty, and enhanced environmental obligations, thus thwarting

not ratified the treaty, it is bound by the sovereignty limits described in the document due to its historical compliance and several presidential proclamations.[90] Generally, because the US views UNCLOS as incorporating customary principles of international law to which the US adheres, the US implements its oceans policy accordingly.[91]

Global warming's impact on Arctic fisheries has resulted in both legal uncertainty and certainty. The legal uncertainty refers to the ambiguous nature of ownership in regards to the Arctic Ocean's resources.[92] The legal certainty ensues from UNCLOS's provisions, which obligate its signatories to cooperate with others to conserve marine resources and to exchange scientific information regarding the conservation of fish stocks.[93] The dichotomous legal status of ownership and obligation should not stymie conservation efforts. Thus, a joint management regime between the US and Canada concerning the Beaufort Sea fisheries, despite not solidifying jurisdictional claims, provides an optimal compliance opportunity in accordance with UNCLOS's conservation obligations.[94]

E. Fisheries Management

As mentioned previously, earlier views regarded fish abundance as immune to the effect of human actions.[95] Today, this view has been laid to rest. The world's population boom, contemporary fishing technology, and an awareness of ecosystem fragility have caused nations to pause and reevaluate their approach to fishery management.

Many fishing nations have increasingly and aggressively subsidized and modernized their fishing fleets.[96] These efforts have resulted in vastly improved fishing efficiency and, as a consequence, a decrease in fish populations.[97] Modern technology enables fishermen both to locate fish precisely and place

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commercial development. See generally J.M. Spectar, *Elephants, Donkeys, or Other Creatures? Presidential Election Cycles & International Law of the Global Commons* 15 Am U Intl L Rev 975, 998–1011 (2000).

90 Holmes, Comment, 9 Chi J Intl L at 333 (cited in note 25).

91 Clive Schofield, Tavis Potts, and Ian Townsend-Gault, *Boundaries, Biodiversity, Resources, and Increasing Maritime Activities: Emerging Oceans Governance Challenges for Canada in the Arctic Ocean*, 34 Vt L Rev 35, 44 (2009).

92 Rajabov, Comment, 15 Sw J Intl L at 421 (cited in note 77).

93 Guruswamy, *Jurisdictional Conflicts* at 312 (cited in note 26).

94 See id at 317.

95 Juda, *Changing Perspectives on the Oceans* at 17 (cited in note 59).

96 Schaefer, Comment, 8 Georgetown Intl Envir L Rev at 438 (cited in note 26).

97 Id.

their nets accurately.[98] Further, today, the nets themselves are larger, and are towed by faster-powered vessels; both of which allow for increasingly successful fish catches in terms of quantity.[99] Also, the vessels now have the capability to store, process, and transfer fish catches quicker and for longer periods.[100]

UNCLOS attempts to strike a balance between the recognition that the ocean remains an environment to be utilized, and that it must also be protected from excessive exploitation.[101] The catch level of desirable species does not—and cannot—keep pace with expanding fish demand.[102] UNCLOS can and should be utilized for the sustainable management of fish harvests.

In 1983, the UN, in an attempt to solidify the UNCLOS provisions regarding fish and environment conservation, adopted an agreement relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks ("Fish Stock Agreement").[103] The Fish Stock Agreement builds upon Agenda 21 of the Rio Declaration, which recognizes the non-coterminous nature of ecological systems and jurisdictional demarcations.[104] Similar to Agenda 21, which attempts to build "international cooperation 'to conserve, protect, and restore the health and integrity of the Earth's ecosystem,'"[105] the Fish Stock Agreement seeks "to ensure the long term conservation and sustainable use of straddling fish stocks and highly migratory fish stocks."[106] Through effective implementation of the provisions relating to fisheries in both Agenda 21 and UNCLOS, the Fish Stock Agreement requires nations to collaborate in the development of measures necessary to conserve fish populations that do not respect man-made jurisdictional limits. The Fish Stock Agreement recognizes the value of international cooperative efforts to ensure adequate fisheries resource management based upon the precautionary principle and an ecosystem approach.[107] Importantly, if a fish stock occurs within two adjacent EEZs or an EEZ and a high seas zone, the fishing states are

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98 Juda, *Changing Perspectives on the Oceans* at 21 (cited in note 59).

99 Id.

100 Id.

101 See id at 24.

102 Juda, *Changing Perspectives on the Oceans* at 21 (cited in note 59). See also Schofield, Potts, and Townsend-Gault, 34 Vt L Rev at 38 (cited in note 91) ("Arctic species potentially will be vulnerable to overfishing.").

103 Hassan, 40 J Marit L & Comm at 524 (cited in note 12).

104 Juda, *Changing Perspectives on the Oceans* at 24 (cited in note 59).

105 Id, citing Rio Declaration on Environment and Development (June 1992) Principle 7, UN Doc A/Conf 151/26.

106 Hassan, 40 J Marit L & Comm at 525 (cited in note 12).

107 Id at 525, 536.

obligated to seek agreement on the measures required to conserve those resources.[108]

IV. THE FAILURES OF PREVIOUS REGIONAL FRAMEWORKS FOR THE ARCTIC

In the Arctic, "no true regional regime has been developed notwithstanding the common problems confronting Arctic States."[109] Rather, through national approaches to the law of the sea, each Arctic nation adopts and implements "legal rules and norms that it feels best serve its national interests within the context of its own polar seas."[110] Nevertheless, several previous attempts have been made to achieve environmental cooperation as a first step in promoting comprehensive environmental security in the Arctic region.[111]

In 1991, Canada, Denmark, Finland, Iceland, Norway, Sweden, the former USSR, and the US adopted the Arctic Environmental Protection Strategy (AEPS), which focused on both the sustainable use of natural resources and the elimination of pollution in the region.[112] The AEPS, however, failed to prescribe specific obligations for Arctic states to protect the marine environment and was not specific to fish resources management.[113] Thus, its prospects for success were limited from the start.

In an attempt to overcome the failure of the AEPS, the same nations formed the Arctic Council in 1996.[114] In some respects, the Arctic Council has been successful. The Arctic Council succeeded in its efforts to identify Arctic environmental problems, raise public awareness, mobilize political action on the global stage, and promote the Arctic as a distinct political region.[115] But, poignantly, the Arctic Council has again failed in its endeavor to carry out, or, at

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108 See Christopher C. Joyner, *Ocean Fisheries, US Interests, and the 1982 Law of the Sea Convention*, 7 Georgetown Intl Envir L Rev 749, 754 (1995).

109 Donald R. Rothwell and Christopher C. Joyner, *The Polar Oceans and the Law of the Sea*, in Alex G. Oude Elferink and Donald R. Rothwell, eds, *The Law of the Sea and Polar Maritime Delimitation and Jurisdiction* 1, 1 (Martinus Nijhoff 2001).

110 Id.

111 Hassan, 40 J Marit L & Comm at 530 (cited in note 12).

112 Id.

113 Id.

114 Hertell, Comment, 21 Georgetown Intl Envir L Rev at 577–78 (cited in note 2). The Arctic Council is based on and subsumes the AEPS in its mission to protect the Arctic environment. See generally David VanderZwaag, Rob Huebert, and Stacey Ferrar, *The Arctic Environmental Protection Strategy, Arctic Council and Multilateral Environmental Initiatives: Tinkering while the Arctic Marine Environment Totters*, in Alex G. Oude Elferink and Donald R. Rothwell, ed, *The Law of the Sea and Polar Maritime Delimitation and Jurisdiction* 225, 239 (Martinus Nijhoff 2001).

115 Hertell, Comment, 21 Georgetown Intl Envir L Rev at 578 (cited in note 2).

the very least, coordinate international action to redress the Arctic's environmental problems, because it lacks enforcement power and abstains from fisheries management.[116]

In another cooperative attempt in May, 2008, all five Arctic coastal states' ministers jointly issued the Ilussiat Declaration.[117] This document commits the nations "to 'the orderly settlement of any possible overlapping claims' and [to acknowledge] their 'stewardship' responsibilities, principally via existing soft law instruments such as regional cooperation."[118] But this declaration, similar to previous bilateral and multilateral arrangements, will not be adequate for effective conservation and prevention of over-fishing.[119] Arctic states have not demonstrated the political will to enforce such policies.[120]

Also, the International Joint Commission (Commission), a bilateral endeavor between Canada and the US to manage the boundary waters, does not provide a suitable platform for managing the Beaufort Sea dispute. The Commission's primary purpose, to facilitate "free and open [access to water] for the purposes of commerce,"[121] directly conflicts with UNCLOS's essence, which is to enable fish conservation.[122] Furthermore, the Commission lacks the institutional capacity to manage the Beaufort dispute effectively for two reasons. First, it is not an appropriate mechanism because either nation can paralyze the arrangement by withholding consent to the agreement.[123] Second, because the Commission applies to a defined property right, it is not applicable to an open-access resource such as the Beaufort Sea fishery that could potentially be utilized by third parties.[124]

As of now, sustainable commitment to regional or bilateral management of Arctic fisheries is only an illusion. Thus, Canada and the US should seek to manage the Beaufort Sea fishery through UNCLOS's multinational platform.[125]

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116 Id.

117 Schofield, Potts, and Townsend-Gault, 34 Vt L Rev at 52 (cited in note 91).

118 Id.

119 Hassan, 40 J Marit L & Comm at 534 (cited in note 12).

120 Schofield, Potts, and Townsend-Gault, 34 Vt L Rev at 55 (cited in note 91).

121 Treaty Between the US and Great Britain Relating to Boundary Waters, and Questions Arising Between the US and Canada (Jan 11, 1909), Art 1, 36 Stat 2448, 2449.

122 UNCLOS, Art 61 (cited in note 27).

123 Oran R. Young, *North American Resource Regimes: Institutionalized Cooperation in Canadian-American Relations*, 15 Ariz J Intl & Comp L 47, 60 (1998).

124 See Sinden, 78 U Colo L Rev at 547 (cited in note 42).

125 See Hassan, 40 J Marit L & Comm at 534–35 (cited in note 12).

V. THE BEAUFORT SEA

The existence of different views concerning the maritime boundary between Canada and the US first emerged when the two states negotiated a continental shelf boundary and attempted to define the limits of their EEZs.[126] Canada applied the 141st meridian. The US applied the principle of equidistance between the two nations.

A. The Claims of Canada

Canada's claim to the disputed territory reflects its contention that the 141st meridian has been utilized in previous treaties, accords with the sector principle, and has been the practice of both states.[127]

1. Previous treaties.

First utilized in an 1825 treaty, the 141st meridian demarcated the boundary between Alaska (part of Russia's territory) and the British possessions in North America. The treaty indicated that "the line of demarcation shall follow . . . the said meridian line of 141[st degree west] in its prolongation as far as the Frozen Ocean."[128] In 1867, the same language and boundary was utilized in the Russian cession of Alaska to the US.[129] Based upon rules of succession, the US and Canada must adhere to the previous treaties' boundary demarcation as made between the United Kingdom and Russia in 1825, and Russia and the US in 1867.[130] Canada succeeded to the UK's agreement with Russia, while the US succeeded to Russia's interest in Alaska.[131]

Competing colorable arguments could be made concerning the meaning of "as far as the Frozen Ocean." One could view the phrase as including the delimitation of maritime areas. But many authors view this language as only delimiting the land territory of the two states.[132] The Vienna Convention on the Law of Treaties codifies the customary approach to treaty interpretation.[133] It holds that a "treaty shall be interpreted in good faith in accordance with the

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126 Elferink, *Arctic Maritime Delimitations* at 190 (cited in note 15).

127 Id at 190–91.

128 Id at 191, quoting Convention between Great Britain and Russia concerning the Limits of Their Respective Possessions on the North-West Coast of America and the Navigation of the Pacific Ocean of 28 February 1825 (75 CTS 96) (alterations in original).

129 Id.

130 Lawson, Note, 22 Va J Intl L at 228 (cited in note 80).

131 Id.

132 Elferink, *Arctic Maritime Delimitations* at 191 (cited in note 15).

133 Lawson, Note, 22 Va J Intl L at 230–31 (cited in note 80).

ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose."[134] The reference, including its language and context, seems to provide little ambiguity that the demarcation was intended only to delimit the land territory of the two states.[135] Thus, "as far as the Frozen Ocean" limits the boundary of the land until it reaches the Arctic Ocean.

2. The sector theory.

The sector theory can be traced to Canadian Senator Pascal Poirier, who invoked the theory as the basis for Canada's claim to all islands lying between the Canadian mainland and the North Pole.[136] The sector theory entails that all territory between an Arctic nation's eastern and western edge to the North Pole is the property of that nation. But Canada's reliance on the sector theory has been intermittent and often ambiguous.[137] In 1956, a parliamentary speech by then Minister of the Department of Northern Affairs "explicitly rejected application of the sector theory to ice and water."[138] Today, Canada has invoked the principle in its continuous negotiations with the US in regards to the Beaufort Sea.[139] Canada claims this method of territorial delimitation, however, only with respect to the Beaufort Sea, not the Lincoln Sea, in which a dispute could arise with Denmark.[140] It is ironic that strict adherence to Canada's sector theory—combined with neighboring states' approvals—would result in Canada having less maritime space than strict adherence to equidistance lines.[141]

Further, the sector theory itself has not been recognized as a settled practice or customary international law.[142] In fact, the sector principle has been expressly rejected by Denmark, Norway, and the US.[143] Additionally, the sector principle, if applied to the high seas beyond the EEZ of any nation, would be

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134 Id, quoting Vienna Convention on the Law of Treaties (May 22, 1969) Art 31(1), 8 ILM 679.

135 Elferink, *Arctic Maritime Delimitations* at 191 (cited in note 15).

136 Robin R. Churchill, *Claims to Maritime Zones in the Arctic—Law of the Sea Normality or Polar Peculiarity?*, in Alex G. Oude Elferink and Donald R. Rothwell, eds, *The Law of the Sea and Polar Maritime Delimitation and Jurisdiction* 105, 121 (Martinus Nijhoff 2001).

137 Elferink, *Arctic Maritime Delimitations* at 191 (cited in note 15).

138 Churchill, *Claims to Maritime Zones in the Arctic* at 122 (cited in note 136). Presumably, the Minister was following previous application of the sector principle to land and islands in the Arctic, not to maritime areas. See Elferink, *Arctic Maritime Delimitations* at 191 (cited in note 15).

139 Churchill, *Claims to Maritime Zones in the Arctic* at 123 (cited in note 136).

140 Elferink, *Arctic Maritime Delimitations* at 198 (cited in note 15).

141 Schofield, Potts, and Townsend-Gault, 34 Vt L Rev at 47 (cited in note 91).

142 Elferink, *Arctic Maritime Delimitations* at 191 (cited in note 15).

143 Churchill, *Claims to Maritime Zones in the Arctic* at 123 (cited in note 136).

incompatible with UNCLOS Article 89, "which prohibit[s] States from purporting to subject any part of the high seas to their sovereignty."[144]

3. Practice of both nations.

Because Canada has used the 141st meridian in a number of instruments in defining its Arctic jurisdiction, it asserts that the US is now estopped from contesting the boundary.[145] Most notably, Canada utilized the boundary in the 1970 Arctic Waters Pollution Prevention Act ("Pollution Act").[146] The US has explicitly rejected the theory of estoppel or tacit acceptance.[147] Its response to Canada's argument has been to note that it views the Pollution Act as only combating pollution on the high seas, without delimiting maritime zones.[148]

B. The Claims of the United States

The US, due to its succeeding to Russia's territorial claims, accepts that the 1825 and 1867 treaties established a land boundary at the 141st meridian, but consistently rejects that this boundary has any relationship to the water boundary between itself and Canada.[149] Further, the US has affirmatively rejected the sector theory as a means of boundary delimitation.[150]

The US, in accordance with UNCLOS's provisions, maintains that the equidistant line between the two coasts should be applied as the demarcation boundary because no special circumstances exist and the boundary affords an equitable result.[151] Also, the US insists that the maritime boundary should account for the natural prolongation of its land territory.[152]

In this sense, the US claim may be disingenuous with regard to achieving an equitable result.[153] The US-Alaskan coastline is relatively convex, thus increasing its jurisdictional claim to the Beaufort Sea. In contrast, the Canadian-

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144 Id.

145 Elferink, *Arctic Maritime Delimitations* at 191–92 (cited in note 15).

146 Id at 191. See Arctic Waters Pollution Prevention Act § 2 (1970).

147 Elferink, *Arctic Maritime Delimitations* at 192 (cited in note 15).

148 Id at 192–93.

149 Lawson, Note, 22 Va J Intl L at 233 (cited in note 80).

150 Id.

151 Id at 241–42.

152 Id at 241.

153 Delimiting the disputed area would result in one nation—to the exclusion of the other—gaining access to 6,250 nautical miles of an area once thought to be valuable only for its hydrocarbon potential. See Elferink, *Arctic Maritime Delimitations* at 190 (cited in note 15). Now, fishing resources have also become a plausible benefit from the area. See *Before the Ice Melts*, 9 MPA News at 2 (cited in note 4).

Yukon coastline is relatively concave, thus limiting Canada's claim. The US attempts to support its claim that this result is equitable by asserting that the Canadian coastline becomes increasingly convex in the coast's eastern direction.[154] As a result, the US asserts, a boundary delimited on an equidistance basis would not unfairly deprive Canada of its share of the water column—it would merely shift it.[155]

C. The Beaufort Sea Dispute

1. US policy.

In August 2009, the US adopted as its official policy the Fishery Management Plan for Fish Resources in the Arctic Management Area.[156] The affected area includes all marine waters within its EEZ such as the Chukchi and Beaufort Seas. While the plan explicitly delineates the western edge of the area as the 1990 US-Russia maritime boundary, it ambiguously defines the eastern edge as the US-Canada maritime boundary.[157]

Under the Magnuson-Stevens Fishery Conservation and Management Act, the North Pacific Fishery Management Council (Council) is authorized to recommend and submit to the US Secretary of Commerce for approval a Fish Management Plan for the Beaufort Sea fishery that requires conservation and management.[158] The Beaufort Sea policy places a moratorium on all commercial fish harvests until sufficient information is available to support the sustainable management of a commercial fishery.[159] The Council recommended the ban on the basis of a recognized need for additional research on potential Arctic fisheries and the long-term impact of climate change in the region.[160] The policy reflects a proactive and responsible attempt at fisheries management, based on sound scientific research and analysis.[161] Similar to the goals espoused in UNCLOS, the policy intends to lead to the sustainability of fishing resources in the Arctic, prevent unregulated fishing, and protect associated ecosystems for the benefit of current and future generations.[162]

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154 Lawson, Note, 22 Va J Intl L at 245 (cited in note 80).

155 Id.

156 See *Fishery Management Plan* at ES-1 (cited in note 11).

157 Id at 8.

158 Id at 3.

159 Id at 2.

160 *Fishery Management Plan* at 4 (cited in note 11).

161 Id.

162 Id.

Application of the precautionary principle grounds the policy. Because data was (and remains) scarce for estimating the abundance and biomass of fishes in the Arctic, the policy delays approval of commercial fishing until such information is available, reviewed, and understood.[163] The policy does not impact indigenous community fishing, nor fishing for Pacific salmon or halibut, all of which are subject to separate governance regulations.[164]

2. Immediacy.

The Beaufort Sea disagreement has largely remained an afterthought in Canada-US relations until the recent effort by the US to impose a fishing moratorium in the disputed area.[165] Today, with the disruption in seasonal and permanent ice presence, maritime jurisdictional claims have grown more salient and have an increasingly practical application.[166] The Beaufort Sea presents an unparalleled opportunity for application of UNCLOS's conservation principles. The proposed moratorium, with Canada's participation, would lead to the protection of a natural ecosystem before it is significantly impacted by human activity.[167]

Arctic waters are known for their highly productive fisheries. Climate change has caused the warming of Arctic waters, in which the effects are only recently becoming more pronounced and assessable. The diminishing sea ice, however, creates uncertainty about the sustainability of fishing in the Beaufort Sea.[168] Previously, fishing efforts were unavailing, as the sea remained ice-covered throughout most of the year. Now—in addition to increased fishing access—additional Arctic fish and crustaceans such as snow crab, Arctic cod, and saffron cod are expected to migrate and populate the opening waters.[169]

3. The application of UNCLOS.

In the absence of a mutual state agreement resolving a boundary dispute, general UNCLOS provisions concerning delimitation should be applied. For EEZ sea disputes, as the Beaufort Sea implicates, equidistance is the starting point.

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163 Id at 6, 9.

164 *Fishery Management Plan* at 2 (cited in note 11).

165 See Boswell, *Canada Considers Beaufort Sea Fishing Moratorium* (cited in note 22).

166 See Churchill, *Claims to Maritime Zones in the Arctic* at 108 (cited in note 136).

167 *Before the Ice Melts*, 9 MPA News at 1 (cited in note 4).

168 See Boswell, *Canada Considers Beaufort Sea Fishing Moratorium* (cited in note 22).

169 Id.

Canada, however, contends that special circumstances apply to the area in dispute. Specifically, Canada identifies previous indigenous use of the sea ice[170] and the concavity of its Yukon shoreline[171] to require any third-party arbitrator either to adjust the equidistant line or ignore it entirely. In essence, Canada argues that strict delimitation according to the equidistance principle would result in an inequitable result.

Because application of the equidistant formula or the sector theory alone would leave either Canada or the US dissatisfied, respectively, the focus should shift from delimitation to facilitating each nation's commitment to UNCLOS's conservation principle. UNCLOS explicitly requires coastal states to promote optimal utilization of living resources, which changes the philosophy of fisheries management from exploitation to sustainability.[172] In lieu of a satisfactory territorial determination, each nation's interests would be advanced more favorably through a joint commitment to utilize the fishing resources of the region efficiently. Indeed, UNCLOS's dispute resolution provisions indicate a preference for peaceful outcomes,[173] and what could be more peaceful than accepting a joint management protocol? Previously, Norway and Russia have demonstrated (and they continue to demonstrate) that co-management of fish resources is an achievable and worthwhile goal.

VI. A DEMONSTRATED SUCCESS STORY—THE SVALBARD ZONE

A. Background to the Dispute

The 1920 Svalbard Treaty, which came into effect in 1925, gave Norway sovereignty over Svalbard.[174] Svalbard, an archipelago 350 nautical miles north of Norway in the Barents Sea, is home to some of the richest fishery resources in the world—when the sea is free from ice.[175] Since 1967, Norway and the Russian

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170 Elferink, *Arctic Maritime Delimitations* at 193 (cited in note 15).

171 Id.

172 Hassan, 40 J Marit L & Comm at 520–21 (cited in note 12); UNCLOS, Art 194 § 5 (cited in note 27). UNCLOS requires states to take measures necessary to protect and preserve rare or fragile ecosystems.

173 Holmes, Comment, 9 Chi J Intl L at 336 (cited in note 25).

174 See Honneland, *Fisheries in the Svalbard Zone* at 317 & n 1 (cited in note 35). See also Treaty Concerning the Archipelago of Spitsbergen (Feb 9, 1920) 10 Australian TS 1925 (1925) online at http://www.austlii.edu.au/au/other/dfat/treaties/1925/10.html (visited Oct 23, 2010).

175 Honneland, *Fisheries in the Svalbard Zone* at 319 (cited in note 35).

Federation (formerly the Soviet Union) have been meeting in regards to delimiting the boundary between the two states.[176]

Similar to Canada's claim in the Beaufort Sea dispute, Russia maintains that the boundary should coincide with the sector line, as applied in its national legislation.[177] Russia regards equidistance and special circumstances as having equal status in resolving maritime disputes.[178] Russia considers valid the following factors in determining maritime jurisdiction: coastal configuration (Canada's primary argument), coastal length, geological and ice conditions, population size, economic concerns, and strategic interests.[179]

Norway, analogously to the position of the US concerning the Beaufort Sea, maintains equidistance as the primary method of delimiting a boundary line. Norway regards geographical attributes as a special circumstance, but holds that with regard to the Svalbard archipelago, no special circumstances exist that warrant another boundary.[180]

The competing claims, concerning the area known as the Svalbard Zone, have led to a disputed area of 108,500 square miles consisting of considerable fishery resources, hydrocarbon potential, and strategic military advantage.[181] Because of the dispute, Norway has chosen a diplomatic enforcement strategy regarding its imposition of fishing regulations.[182]

B. Present Arrangements

Identical to the Beaufort Sea situation, straddling fish populations necessitate joint access to and cooperative management of the boundary in dispute. In 1977, Norway established a 200 nautical mile fishery protection zone around Svalbard.[183] Norway has refrained from making this area an EEZ in accordance with UNCLOS because of the protests from other 1920 Svalbard Treaty signatories.[184] However, within the protection zone, Norwegian

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176 Elferink, *Arctic Maritime Delimitations* at 185 (cited in note 15).

177 Id.

178 Id at 187.

179 Id.

180 Elferink, *Arctic Maritime Delimitations* at 187 (cited in note 15).

181 Id at 185.

182 Honneland, *Fisheries in the Svalbard Zone* at 317 (cited in note 35).

183 Geir Honneland, *Compliance in the Fishery Protection Zone Around Svalbard*, 29 Ocean Dev & Intl L 339, 342 (1998).

184 Id.

authorities establish the total allowable catch, minimum mesh sizes for nets, and the minimum size of fish that may be caught.[185]

In this disputed area, Norway nominally imposes its fishing requirements; but, because these laws lack the same legal significance of an EEZ law, Norway has refrained from penalizing violators.[186] Russia and other states have non-discriminatory access to the fishing resources.[187] Norway requires fishing vessels to report their catches and keep a log book.[188] As a result of this soft approach to the Svalbard Zone, a heated confrontation between Russia and Norway has been avoided.

Because of the two nations' cooperative efforts—Norway's restricting penalty impositions and Russia's allowing inspectors on board vessels to catalog their catches—most fish stocks have grown steadily since the late 1980s.[189]

C. Why Joint Management Has Been Successful in the Svalbard Zone

A superficial inspection of the fishery management regime in the Svalbard Zone suggests that it is ripe to succumb to the tragedy of the commons. Previous assessments of traditional property rights suggest that coercion is needed to manage any natural resource effectively.[190] A public authority's failure to utilize force or the threat of sanctions in the event of a property violation suggests that individuals would not comply, as they are inherently prone to maximize their personal gain without regard to the detrimental effect on the common good.[191]

Rather than relying on coercion, Norway's management of the Svalbard Zone's fishery resources relies on co-management.[192] Its success depends upon the role of legitimacy in bringing individuals into compliance.[193] Russia and other nations comply because they perceive the regulations—and the process through which they are produced—as legitimate.[194] In addition to individual national management controls, Russia and Norway undertake a co-management

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185 Churchill, *Claims to Maritime Zones in the Arctic* at 118 (cited in note 136).

186 See Honneland, *Fisheries in the Svalbard Zone* at 323 (cited in note 35).

187 Churchill, *Claims to Maritime Zones in the Arctic* at 118 (cited in note 136).

188 Id.

189 Honneland, 29 Ocean Dev & Intl L at 341 (cited in note 183).

190 Id at 339.

191 Id.

192 Id at 340–41.

193 Honneland, 29 Ocean Dev & Intl L at 340 (cited in note 183).

194 Id.

approach to the Svalbard Zone based upon an agreement to share research, create regulations together, and jointly ensure compliance.[195]

With regard to research, Norwegian and Russian marine biologists cooperate in their assessment of the Barents Sea fish stocks.[196] This joint scientific endeavor leads to a sharing of knowledge in accordance with UNCLOS's provisions.[197] In turn, the sharing of scientific information allows Norway to adjust the fishing regulations in accordance with the natural conditions. Scientists enhance the legitimacy of the rules as they communicate to the fishermen that the established quotas and other regulations are not arbitrary, but rather based on scientific findings.[198]

With regard to rule creation, the Joint Russian-Norwegian Fishery Commission meets every autumn to establish total allowable catches for the three primary fish stocks.[199] This commission also reflects the fishermen's voice, as they are afforded input in the process, thereby enhancing the regulations' legitimacy.[200] Because fishermen perceive the regulations as legitimate, they choose to comply.[201]

With regard to compliance control, Russian and Norwegian authorities cooperate in exchanging information concerning violations.[202] Because both parties recognize the need for fish stock preservation at a sustainable level, they willingly assist one another.[203]

The Norwegian government mainly performs compliance control on the sea with the assistance of Russian authorities on shore.[204] Russian violators are not punished directly by the Norwegian coast guard; rather, they face the possibility of domestic penalties.[205] While Russian captains routinely refuse to sign inspection forms presented by the Norwegian coast guard, they welcome

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195 Id at 340–41.

196 Id.

197 UNCLOS, Art 206 (cited in note 27) ("When States have reasonable grounds for believing that planned activities under their jurisdiction or control may cause . . . harmful changes to the marine environment, they shall . . . assess the potential effects . . . and shall communicate reports of the results . . . in the manner provided in article 205.").

198 Honneland, 29 Ocean Dev & Intl L at 350 (cited in note 183).

199 Id at 340–41.

200 Id.

201 Honneland, *Fisheries in the Svalbard Zone* at 332 (cited in note 35).

202 Honneland, 29 Ocean Dev & Intl L at 340–41 (cited in note 183).

203 Honneland, *Fisheries in the Svalbard Zone* at 332 (cited in note 35).

204 Honneland, 29 Ocean Dev & Intl L at 341 (cited in note 183).

205 Honneland, *Fisheries in the Svalbard Zone* at 332 (cited in note 35).

inspectors on board.[206] Since the mid-1980s, the percentage of inspections that have revealed a violation has hovered around 25 percent in the Norwegian EEZ and 45 percent in the Svalbard Zone.[207]

While this disparity may seem to refute this Comment's assertion that fishery management is successful in the Svalbard Zone, most violations are due to Russian fishermen not reporting to the Norwegian authorities before commencing fishing activities. This is not a serious violation of the fishing rules.[208] If the data were adjusted to exclude this type of violation, the overall violation rates would not differ dramatically between the two zones.[209]

Another source of compliance control is the nature of the region. Located far away from population centers, the Svalbard Zone is less accessible than most other areas where fishing occurs.[210] Thus, the Norwegian coast guard becomes more than a control body to the fishermen.[211] In addition to regulating fishing, the coast guard provides services ranging from medical assistance, to transportation, to ice breaking.[212] These services are provided free of cost to the fishermen, and as such, they may contribute to the fishermen's perception of an obligation to abide by the Norwegian authorities.[213] Another factor creating a mutual sense of obligation may be the inhospitable conditions of the sea.[214] The fishermen and the coast guard may have developed a spontaneous communal spirit and thus feel bound to help one another, leading the fishermen to adhere to the fishing regulations.[215]

VII. APPLICATION TO THE BEAUFORT SEA

A. Why Co-Management is the Preferable Arrangement

As exhibited by the successful management of fish stocks in the Svalbard Zone, rather than delimiting inherently unsatisfactory maritime boundaries, Canada and the US should pursue a course of co-management regarding fish resources in the disputed Beaufort Sea. Property rights involve high resource use

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206 Id at 323.

207 Id at 329.

208 Id.

209 Honneland, *Fisheries in the Svalbard Zone* at 329 (cited in note 174).

210 Id at 318.

211 Id at 333.

212 Id.

213 Honneland, *Fisheries in the Svalbard Zone* at 333 (cited in note 174).

214 Id at 333–34.

215 See id.

and political costs relative to their expected gains.[216] Thus, cooperation provides a viable solution to avoiding the problems associated with the tragedy of the commons.[217]

Few, if any, doctrinal justifications exist for applying the sector theory as a method of maritime delimitation solely because of the characteristics of the Arctic environment.[218] Delimiting boundaries based upon the equidistance principle could fail due to a lack of certainty in its application of special circumstances and the ambiguity in achieving an equitable result. Thus, defining a Beaufort Sea boundary between the US and Canada provides no easy solution.

The Fish Stock Agreement requires states to cooperate to strengthen scientific research capacity concerning ocean resources, which would lead to the proper evaluation of fish stocks from which all would benefit.[219] If territorial claims simply provide an opportunity for nations to expand their ability to exploit resources, then the conservation goals of UNCLOS will remain unfulfilled.[220] The overarching principle of UNCLOS, however, may provide a catalyst for Arctic nations to agree that co-management is the preferable scheme.[221] Because of the shared interest of both Canada and the US in fish conservation, scientific cooperation may lead to a satisfactory resolution of boundary dispute.[222]

A joint management approach to managing transboundary marine living resources is preferable for three reasons. First, fisheries are common-property resources subject to individual selfish maximization of short-run results without regard for long-term consequences on other users.[223] Second, marine living resources do not follow human-constructed national boundaries. Therefore, to properly manage these transboundary resources that benefit both states, cooperation is essential.[224] Third, a solution achieved through cooperation rather than adjudication fulfills UNCLOS Part XV's emphasis on resolving disputes amicably.[225]

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216 Libecap, 50 Ariz L Rev at 381 (cited in note 45).

217 Hsu, 69 Albany L Rev at 87 (cited in note 6).

218 Elferink, *Arctic Maritime Delimitations* at 187–88 (cited in note 15).

219 See Conference on Straddling Fish Stocks and Highly Migratory Fish Stocks, Art 14, ¶ 3, UN Doc A/CONF164/37 (1995).

220 *Before the Ice Melts*, 9 MPA News at 2 (cited in note 4).

221 Id.

222 Baker, 34 Vt L Rev at 58 (cited in note 38).

223 Ostrom, et al, 284 Sci at 279 (cited in note 43).

224 Ted L. McDorman, *Canada-United States Cooperative Approaches to Shared Maring Fishery Resources: Territorial Subversion?*, 30 Mich J Intl L 665, 666 (2009).

225 Hertell, Comment, 21 Georgetown Intl Envir L Rev at 572 (cited in note 2).

B. Joint Scientific Research

The projected impacts of climate change are likely to be profound on Beaufort Sea fisheries.[226] Climate change poses increased risks of disease as non-native species inhabit the territory, increased pollution levels, and increased competition from the northward expansion of temperate species.[227] Abundant uncertainties concerning the long-term impact of climate change necessitate research studies similar to those undertaken by Norwegian and Russian marine biologists.

Canada's new openness to confronting the territorial dispute follows two summers of collaborative research between Canadian and US scientists aboard their nations' respective ice-breakers.[228] The Arctic policy directive of the US promotes the sharing of Arctic research platforms with other countries when conducting collaborative research.[229]

Until scientists establish an understanding regarding the abundance or biomass of fish communities, Canada and the US are well-advised to refrain from commercial fishing due to the potential to harm fish populations irrevocably.[230] Currently, both the US and Canada adhere to the precautionary principle when confronting fishery resources in the Arctic.[231] Effective governance requires "not only factual information about the state of the environment and human actions but also information about uncertainty and values."[232] The joint management of scientific research will also enhance the legitimacy of any implemented regulations, as evidenced by the Svalbard Zone's policy of shared research.

C. Canada and the US Should Utilize the Precautionary Principle when Establishing Sustainable Catch Harvests

Climate change could affect all aspects of fisheries resources, including rates of recruitment, growth, mortality, and the viability of commercial or subsistence fishing.[233] Climate change influences ice cover, water temperature,

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226 Hassan, 40 J Marit L & Comm at 513 (cited in note 12).

227 Id.

228 See Boswell, *Canada Signals Willingness*, Vancouver Sun (cited in note 20).

229 Crook, 103 Am J Intl L at 346 (cited in note 9).

230 Id at 349.

231 See Boswell, *Canada Considers Beaufort Sea Fishing Moratorium*, Vancouver Sun (cited in note 22); Baker, 34 Vt L Rev at 92 (cited in note 38).

232 Dietz, Ostrom, and Stern, 302 Sci at 1908 (cited in note 31).

233 Hassan, 40 J Marit L & Comm at 514–15 (cited in note 12).

and ocean currents, which all combine to affect the availability of nutrients for fish.[234]

Because the Canadian Arctic Ocean has been relatively little-used, except for traditional Inuit subsistence fishing, the need to remove a well-established fishing industry is conspicuously absent from the debate regarding a moratorium.[235] In fact, the US moratorium on commercial fishing in the Beaufort Sea has garnered the support of the Marine Conservation Alliance—Alaska's largest fishing group.[236]

Analogous to the perceived legitimacy of fishing quotas established in the Svalbard Zone, affording Alaskan and Canadian fishermen input into establishing fishing regulations in the Beaufort Sea may lead to an enhanced perception of the rules' legitimacy.[237] As scientists provide outreach and education programs that provide fishermen with knowledge regarding the fragility of the system, the fishermen will realize that the regulations are not arbitrary, but rather are vital to the ecosystem's overall protection, including allowed harvesting zones.[238]

D. Indirect Coercion

In contrast to the Svalbard Zone, in which Russian (and formerly Soviet) vessels had been fishing since its establishment, no commercial fishing activity presently exists in the Beaufort Sea.[239] The absence of an established fishing industry provides an opportunity for both countries to implement a stringent fishing management system, or even a moratorium, that would not be regarded as a violation of property rights.

A key component of the management and enforcement scheme, as previously described, is the education and outreach program. Dialogue involving "scientists, resource users, and [an] interested public, and informed by analysis of

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234 Id.

235 *Before the Ice Melts*, 9 MPA News at 3 (cited in note 4).

236 See Allison Winter, *US Bans Commercial Fishing in Warming Arctic*, NY Times (Aug 21, 2009), online at http://www.nytimes.com/gwire/2009/08/21/21greenwire-us-bans-commercial-fishing-in-warming-arctic-33236.html (visited Oct 22, 2010).

237 See Honneland, *Fisheries in the Svalbard Zone* at 332–33 (cited in note 35). Fishing permits are allocated by a regional administrator in consultation with the Alaskan Fisheries Science Center and the North Pacific Fishery Management Council. Upon the recommendation of the North Pacific Fishery Management Council, the permit system would become operational in the Beaufort Sea. *Fishery Management Plan* at 35 (cited in note 11).

238 Honneland, *Fisheries in the Svalbard Zone* at 330–32 (cited in note 35).

239 *Fishery Management Plan* at 2 (cited in note 11).

key information about [the environment]" is critical.[240] Indirect coercion can be achieved through increasing fishermen's cognizance of the importance of sustainable fish management which should align their interests with those of conservationists.

Additionally, similar to the Svalbard's inhospitable climate, a spontaneous spirit of community is likely to arise in the Beaufort Sea. Coast guards of either nation that maintain enforcement efforts on the sea are also likely to serve as sources of medical assistance, transportation, and ice-breaking. As the Arctic Ocean warms, US enforcement officials and potential Canadian fishermen can work more closely together to pursue and protect their common interests.[241] Community-based institutions often use informal strategies, such as nourishing the spontaneous spirit of community, for achieving compliance.[242]

E. Potential Pitfalls

Unlike the Svalbard Zone, in which fish stocks are known to be among the most prosperous in the world,[243] currently, fish populations in the Beaufort Sea are relatively unknown,[244] with a potential for increased fish migration as a result of global warming. While the current moratorium on commercial fishing activities appears prudent, it may not be realistic given the economic demands and the sharp decreases in ice-cover that previously precluded fishing.

If neither the US nor the Canadian government asserts that the contested area of the Beaufort Sea falls within each country's EEZ, the potential exists for third-party nations, including Russia and Japan, to assert their right to fish on the high seas. Without a nation exercising jurisdiction, the area becomes susceptible to third-party poachers, much like the Spanish fishing in the Svalbard Zone.[245]

VIII. CONCLUSION

Both the US and Canada have viable legal claims to jurisdiction in the opening Beaufort Sea as the Arctic ice continues its precipitous decline. Rather than risk a possible adverse resolution of the dispute by a third party under the remedial measures of UNCLOS, these two nations should chart a new course in

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240 Dietz, Ostrom, and Stern, 302 Sci at 1910 (cited in note 31).

241 See Baker, 34 Vt L Rev at 76 (cited in note 38).

242 Dietz, Ostrom, and Stern, 302 Sci at 1909 (cited in note 31).

243 Honneland, 29 Ocean Dev & Intl L at 341 (cited in note 183).

244 *Fishery Management Plan* at 9–13 (cited in note 11).

245 See Honneland, 29 Ocean Dev & Intl L at 350 (cited in note 183). Spanish fishermen, however, have been limited in the Svalbard Zone due to their own domestic government's imposing sanctions if fishing violations are detected. Id.

their negotiations: joint management. An implicit assumption exists that any form of regulation is a subtraction from an individual right and that it invariably diminishes the wealth of the regulated individual.[246] But this simple assumption neglects the benefits realized from cooperation.[247]

The Law of the Sea has a positive influence on international law with a broader recognition of cooperation between states as vital to sustainability efforts.[248] Joint management should include: (1) shared research, (2) a common understanding of the issues, (3) pursuit of indirect coercion methods, and (4) incentives for voluntary participation.

Following a framework based upon Norway and Russia's co-management of the Svalbard Zone, Canada and the US should undertake collaborative research efforts to establish a scientific basis for making decisions regarding management of fishing resources in the Beaufort Sea. The rapidly changing environment of the Arctic Ocean necessitates patience on the part of both nations and adherence to the precautionary principle, which both the US and Canada espouse in their respective policy directives. Once scientists share their research, and due to both countries' current policies, a common solution to the risks involved in large-scale commercial fishing will become possible. As the issues become better understood, Canada and the US will develop a sense of shared responsibility to manage them well.[249]

Both nations must then pursue a course of indirect coercion. Education and outreach programs by scientists for local fishermen will enhance the legitimacy of the regulations. When fishermen view the regulations as not arbitrary, but rather as vital to the sustainability of fish harvests for their livelihoods, they will voluntarily comply.

To successfully achieve the goal of conservation espoused by UNCLOS, national territorialism must give way to international stewardship. Thus, in stewardship rests the future of the Beaufort Sea's fish resources.

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246 Hsu, 69 Albany L Rev at 105 (cited in note 6).

247 Id.

248 Franckx, Maritime Claims at 240 (cited in note 1), quoting A Yankov, *The Principle of Cooperation of States in the Mastering and Use of the World Ocean* (in Russian) in A Movchan and A Yankov, eds, *The World Ocean and International Law: Fundamental Principles of the Contemporary Legal Order of the World Ocean* 222–23 (Izdatel'stvo 1986).

249 See Baker, 34 Vt L Rev at 59 (cited in note 38).

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